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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of

Matsumoto, Kimikazu

Serial No.: 09/929,488 Group Art Unit: 2883

Filed: August 15, 2001 Examiner: Rude, T.

For: **ACTIVE MATRIX TYPE LIQUID CRYSTAL DISPLAY DEVICE**

Commissioner of Patents
Alexanderia, VA 22313-1450

APPELLANT'S REPLY BRIEF ON APPEAL

Sir:

Appellant respectfully provides the following reply to two specific issues contained in the Examiner's Answer dated April 21, 2005, in the above-identified Application, as identified below using the same section identification motif used by the Examiner in the Examiner's Answer.

(3) Status of Claims

On page 2 of the Examiner's Answer, the Examiner alleges that claims 18-20 are not subject to rejoinder because these claims are "... not directed to the elected invention (a display device) as originally presented."

Appellant submits that this statement in the Examiner's Answer contradicts the statement in the Office Action dated August 8, 2004. In paragraph 3 on page 2 of that Office Action, the Examiner stated: "*Applicant is respectfully reminded that rejoinder of withdrawn*

process claims will be made if they are found to depend from or otherwise include all the limitations of an allowable product claim (MPEP 821.04)."

Because of the Examiner's contradictory positions on the record for claims 18-20, Appellant files concurrently herewith a Petition to Force Entry of Claims 18-20, as a preliminary issue for this Appeal process.

(10) Response to Argument

First, Appellant agrees with Examiner's statement on page 21 that "tilt angle" has been used inadvertently in various locations of the Appellant's arguments in Section VII ARGUMENTS, when "twist angle" is the parameter of interest. Accordingly, Appellant provides a corrected version as an attachment hereto and requests that this corrected version be added to the record.

Second, Appellant replies to two points raised by the Examiner in the Examiner's Answer, as follows.

1. Examiner's Allegation That There is No "Sweet Spot"

On page 23 the Examiner alleges that there is no "sweet spot" demonstrated by the information provided in the present Application. The Examiner further alleges that there are no "unexpected results" demonstrated by the present invention.

In response, Appellant submits that the "sweet spot" is clearly shown in Figure 8, which figure is not even mentioned in the Examiner's Answer.

Relative to the Examiner's characterization of Figures 6 and 7, it is noted that these two figures actually demonstrate the relative improvement of the present invention over the conventional example.

In general, Appellant submits that the Examiner seems to continue to miss the significance of the discussion presented in the specification of the present Application that Appellant has discovered that twist angle is a parameter that affects a number of different performance results and that some of these performance results contradict to each other.

Therefore, as based on this disclosure and clearly demonstrated in Figure 8, there is a preferred narrow range of twist angle that optimizes performance in a number of performance

parameters, in view of the conflict of performance results possible when twist angle is considered without taking into account all of these performance effects.

Stated slightly differently, the "unexpected results" that is presented in the present invention, and that the Examiner insists as being absent in the present invention, is the recognition by Appellant that twist angle affects a number of performance parameters, including one or more conflicting performance results. Thus, twist angle's effect is more than a simple progressive relationship in which performance increases proportionately in relation to twist angle. This tradeoff in performance results due to varying twist angle, and the resultant preferred narrow range of twist angle, is clearly shown in Figure 8.

2. Motivation to Optimize Performance

Responding to the Examiner's argument that one of ordinary skill would be able to optimize the prior art references, Appellant again submits that one must first be aware that twist angle affects the specific performance result being measured before there would be a motivation to optimize that performance result by adjusting twist angle.

The prior art of record does not mention the multiple performance effects due to twist angle or that conflicting effects result from adjusting twist angle, thereby suggesting the "sweet spot" shown in Appellant's Figure 8.

Stated yet slightly differently, Appellant points out that it may very well be possible to achieve the performance results of the present invention in the display described in the prior art references by adjusting other design parameters than twist angle. Appellant has discovered one specific method to achieve the conflicting performance parameters described in the specification. There may be others.

Because Appellant has discovered a performance problem not previously recognized in the art, as well as described one possible solution to that newly-discovered problem, Appellant is fully entitled to the protection of the specific method that has been disclosed and defined in the claimed invention.

CONCLUSION

In view of the foregoing, Appellants submit that claims 1-17 are clearly patentably distinct from the prior art of record and in condition for allowance and that claims 18-20 are also allowable by reason of being subject to rejoinder. Thus, the Board is respectfully requested to remove the rejection of claims 1-17 and to rejoin claims 18-20.

Please charge any deficiencies and/or credit any overpayments necessary to enter this paper to Attorney's Deposit Account number 50-0481.

Respectfully submitted,

Dated: 6/21/05

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ATTACHMENT TO APPELLANT'S REPLY

(Revised version of Section VII. ARGUMENTS to reflect "twist angle" rather than "tilt angle" in various locations)

VII. ARGUMENTS

ISSUE #1: The Narrow Range Prescribed by the Present Invention

A. The Examiner's Position on the Narrow Range of Twist Angle

On page 3 of the Final Office Action, the Examiner concedes that Baur fails to teach setting the twist angle to the narrow range of 0.5 to 4.0 degrees but considers that, because this reference specifies that twist angle be set within +/- 15^0 of 0^0, "... *optimization of the results effective variable β to comprise Applicant's ranges of 0.5 to 4.0 degrees and 1.5 to 2.0 degrees would be obvious to those having ordinary skill in the art of liquid crystals.*"

On page 4, the Examiner states as the motivation that such optimization would "...*produce a display with low dependence of image contrast on viewing angle.*" Presumably, this statement of motivation results from the wording lifted from the Abstract of Baur.

In the Advisory Action dated November 29, 2004, the Examiner states on the attachment page for the item 2 continuation: "... *Applicant's proposed amendments still rely largely on performance recitations in device claims. Performance recitations are generally considered to be met when the structural limitations, as claimed and as disclosed in the Specification, are met. This rationale is based upon the fact [that] the Applicant is required to provide an enabling disclosure for the structure that would perform as claimed. [The] Examiner considers the structural requirements as disclosed to be met by the applied prior art per Final Rejection; therefore, the structure would perform as claimed per Applicant's enabling disclosure.*"

Thus, it appears that the Examiner believes that Baur teaches the same structural limitations as the claimed invention and that the Appellant is improperly relying upon "performance recitations" as distinguishing from Baur.

The Appellant disagrees as discussed below, since the Examiner's position and reasoning are faulty for several reasons.

B. Appellant's Position on the Obviousness of the claimed narrow range

First, the Examiner's position is flawed as a matter of law.

The Examiner is understood as alleging that the claimed invention is merely the routine optimization of the parameters discussed in Baur. More significant to the present invention, the Examiner alleges that Baur recognized β as a "results effective variable."

In summary, the essence of the Examiner's position seems to be that optimization of β provides the benefit of "... *display with low dependence of image contrast on viewing angle.*"

Appellant submits that the Examiner's position and reasoning are faulty for several reasons.

First, it is noted that the Examiner does not point to specific lines in Baur that suggest to separately adjust twist angle β as a parameter to be optimized for any desired characteristic.

Second, the Examiner fails to identify how Baur suggests that any further optimization is necessary or desirable. Indeed, Baur clearly teaches that its desired effect of providing a "... *display with low dependence of image contrast on viewing angle*" is already achieved by setting the parameters as identified therein.

Stated slightly differently, Baur is already optimized for this identified desired effect.

Furthermore, it is noted that Baur clearly teaches that this optimization occurs whenever twist angle β is set anywhere within the broad range of −15 to + 15 degrees.

Therefore, Appellant submits that it cannot reasonably be asserted that Baur suggests further optimization, let alone an optimization that relies specifically upon twist angle β.

Appellant further submits that the Examiner's position can only be described as alleging obviousness because the narrow ranges (e.g., 0.5 to 4.0 degrees/1.5 to 2.0 degrees) for twist angle β prescribed in the present invention are included in the wider range of Baur (e.g., -15 to + 15 degees).

However, as clearly described in MPEP §2131.5:

"If the claims are directed to a narrow range, the reference teaches a broad range, and there is evidence of unexpected results within the claimed narrow range, depending on the other facts of the case, it may be reasonable to conclude that the narrow range is not disclosed with "sufficient specificity" to constitute an anticipation of the claims. The unexpected results may also render the claims unobvious."

Appellant submits that the improved performance parameters identified in the specification (e.g., reduction of threshold voltage, increased response time, and optimal luminance, while concurrently controlling the contrast degradation) of the present Application exactly satisfies the above-identified requirement for identifying the "unexpected results" that occur for the narrow range of twist angle prescribed by the present invention. That is, nowhere in Baur is there even a hint that these specific performance results should even be measured, let alone identifying which specific design parameters affect these results or that twist angle β is the specific parameter to adjust to affect these performance results.

Therefore, Appellant submits that the engineering graphs of the figures of the present Application provide the evidence of the unexpected results that are obtained when twist angle β is set within the narrow ranges prescribed by the claimed invention.

Applicant further submits that the presence of these unexpected results, shown in the figures, is the correct legal standard for evaluation of obviousness of the present invention.

At best, the Examiner's position can only be described as alleging that the present invention is possible within the range of –15 to + 15 degrees recited in Baur.

However, as clearly described in MPEP §2143.01: *"The mere fact that references can be combined or modified does not render the result combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)"* (emphasis in MPEP itself). Baur does not recognize the significance of twist angle as a parameter to adjust to address the problem and results obtained in the present invention.

Without some indication of the significance of twist angle, the most that can be reasonably alleged by the Examiner is that it would be "obvious to try" to continue adjusting all of the parameters in Baur. As clearly stated in MPEP §2144.05 IIB: *"A particular parameter must first be recognized as a result-effective variable, i.e., a variable which*

achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977))."

As the Court in that same case stated (emphasis in the holding itself): "*The PTO and the minority appear to argue that it would always be obvious for one of ordinary skill in the art to try varying every parameter of a system in order to optimize the effectiveness of the system even if there is no evidence in the record that the prior art recognized that particular parameter affected the result. As we have said many times, obvious to try is not the standard.*"

Moreover, as mentioned above, Baur considers itself to already be optimized in the entire range of twist angle –15 to + 15 degrees. There is no suggestion to continue to try to further optimize that device.

Secondly, the Examiner's position is flawed as a matter of fact.

First, it is again noted that the Examiner does not point to specific lines in Baur that suggest to separately adjust twist angle β as a parameter to be optimized. Rather, the parameters of interest in Baur, as clearly identified in the Abstract, are "orientation angle" β_0 and "pretilt angle" α_0.

From this clear description in the Abstract that the two parameters that provide the desired result of a "... display with low dependence of image contrast on viewing angle," Baur clearly teaches against using twist angle β as the parameter to be adjusted.

Second, relative to the Examiner's allegation in the Advisory Action that "*...Applicant's proposed amendments still rely largely on performance recitations in device claims*", Appellant submits that one of ordinary skill in the art would not agree with this characterization of the claim language.

Appellant submits that the claim language clearly requires that the twist angle β be set to a narrow range defined in the claims. This is not a performance recitation but an actual physical adjustment of the hardware. To one of ordinary skill in the art, this physical adjustment is physically measurable. It is, therefore, a physical characteristic of the device

itself. The only performance recitation in the claims is the recitation of the performance result of having made this physical adjustment of the hardware.

Appellant submits that such performance result recited in the claims does not in any way detract from the requirement that the device be physically adjusted to the required range of twist angle. It is this required setting of the physically-measurable parameter twist angle that is patentably significant as the requirement to be met in the structure of Baur. The Examiner concedes that Baur does not teach this narrow range.

ISSUE #2: Additional "Engineering Evidence" Required

A. The Examiner's Position on the Requirement for Additional Engineering Evidence

In the Advisory Action, the Examiner states: "*[The] Examiner considers the structural requirements as disclosed to be met by the applied prior art per Final Rejection; therefore, the structure would perform as claimed per Applicant's enabling disclosure. Also, the applied prior art is considered to provide an ample prima faci[e] case of obviousness that would require evidence to the contrary for adequate [rebuttal] as opposed to mere arguments, for example, engineering evidence of a contrary results effective variable.*"

Although it is not certain exactly what the Examiner is alleging in the above sentences, as best understood, the Examiner's position seems to be that, because Baur is alleged by the Examiner to have the same physical structure as the present invention, then Baur inherently possesses the performance results described by the claimed invention. Appellant responded to this position in the discussion above for the first issue.

Second, as best understood, the Examiner also alleges in the above sentences that the Appellant's experimental results shown in the figures included in the Application fails to qualify as "engineering evidence" and that additional "engineering evidence" would be required.

B. Appellant's Position on Additional Engineering Evidence

First, the Examiner's position is flawed as a matter of law.

Appellant respectfully submits that the Examiner seems to fail to understand that the present invention is completely dedicated to the description of Appellant's engineering measurements of the unexpected results obtained when twist angle is adjusted as described.

That is, even if all other structural aspects of Baur are represented in the structure of the claimed invention, as the Examiner seems to consider, the figures of the present Application describe the actually-measured results that are obtained if twist angle is set to the narrow range described, which feature the Examiner concedes is not described in Baur.

As such, Appellant submits that one of ordinary skill in the art would clearly consider that the figures of the present Application are, by definition, the "engineering evidence" required by the Examiner and that no additional "engineering evidence" would be required to describe the results actually obtained and measured by Appellant.

That is, by simply submitting these figures and describing their significance in the disclosure, Appellant is declaring that these figures correctly represent his "engineering evidence."

Appellant further submits that the Examiner's initial burden for a *prima facie* obviousness rejection would be that of demonstrating a reference that shows this same data or its equivalent. The Examiner concedes that Baur does not present this data or make any suggestion whatsoever that the performance results described in the present invention are significantly improved when twist angle is set within range prescribed by Appellant.

The Examiner is not released from this initial burden by simply refusing to recognize the significance of Appellent's measured results, shown in the figures, or by alleging that such figures fail to qualify as "engineering evidence." Appellant submits that the entire disclosure is a summary of the engineering evidence behind the claimed invention.

If the Examiner wishes to dispute the technical accuracy of these figures, then his initial burden is not met until he provides a reasonable reference that shows that the engineering results illustrated in these figure are incorrect.

Clearly, the Examiner fails to provide a reference that either shows that these engineering results were known in the art or that demonstrates that these engineering results are technically inaccurate.

Because the Examiner (as best understood) merely alleges that Baur inherently would be able to provide the performance of the present invention (*if* twist angle *were to be* set to the prescribed narrow range) but points to no indication in Baur that indicates that such performance results are even a concern therein, let alone that Baur suggest to adjust twist angle for these unrecognized performance results, Appellant submits that the rejection currently of record fails to meet the Examiner's initial burden.

Secondly, the Examiner's position is flawed as a matter of fact.

Appellant respectfully submits that one of ordinary skill in the art would consider that, absent a reasonable rebuttal by the Examiner of incorrectness by presenting reasonable contradictory data, the information contained in the figures of the present application do indeed correctly reflect the actual test measurement data taken by Appellant, that the graphs presented in these figure are indeed "engineering evidence", that these graphs completely describe the facts asserted in the disclosure and described in the claimed invention, and that no additional "engineering evidence" would be required from Appellant to support the claimed invention.

Appellant further submits that, because Baur does not present these graphs for these performance results and, indeed, does not even discuss these performance results, these graphs provide the measured results that clearly indicates the significance of adjusting twist angle to the prescribed range and such significance was not known by Baur.

That is, Appellant submits that these graphs are *prima facie* engineering evidence that clearly demonstrates the unexpected results of setting twist angle to the narrow range defined in the claimed invention.

Appellant additionally submits that the reason the Examiner is confused is that the claims actually describe the physical setting of a measurable parameter of the device and not merely a performance result. Therefore, unless the Examiner can demonstrate that Baur

explicitly teaches to limit twist angle to the narrow range of the claimed invention, his initial burden has not been met.